

What is claimed is:

1. A laminated semiconductor article comprising:
 - a. a flexible substrate;
 - b. a biaxially textured Ir-based buffer layer over said flexible substrate; and
 - c. at least one epitaxial layer of a semiconductor over said Ir buffer layer.
2. A laminated semiconductor article in accordance with claim 1 wherein at least a portion of said substrate comprises at least one of the group consisting of stainless steel, Cu, Ni, Fe, Al, Ag, and alloys of any of the foregoing.
3. A laminated semiconductor article in accordance with claim 1 wherein at least a portion of said substrate comprises at least one of the group consisting of Ni-W, Ni-Cr, Ni-Cr-W, Ni-Cr-Al, Ni-W-Al, Ni-Cr-V, Ni-V, and Ni-Mn.
4. A laminated semiconductor article in accordance with claim 1 wherein at least a portion of said article comprises a buffer system between the Ir-based buffer layer and said semiconductor, said buffer system comprising at least one material selected from the group consisting of nitrides, perovskites, MgO, CeO₂, Y₂O₃, SrTiO₃, BaZrO₃, BaSnO₃, BaCeO₃, YSZ, (RE_{1-x}Sr_x)MnO₃, REMnO₃, RE₂O₃, REAlO₃, RE₂Zr₂O₇, RE₃NbO₇, RESMO, and REMO where RE comprises at least one rare-earth element.
5. A laminated semiconductor article in accordance with claim 1 wherein at least a portion of said flexible substrate is characterized by at least one of the group of characteristics consisting of single crystal, biaxially textured, and untextured.
6. A laminated semiconductor article in accordance with claim 1 wherein said Ir buffer layer further comprises the alloy Ir_{1-x}M_x wherein M comprises at least one element selected from the group consisting of Ta, Ti, Cu, Pt, Pd, Ru, Rh, Os, Au, W, and Ag.
7. A laminated semiconductor article in accordance with claim 1 wherein said semiconductor comprises diamond.

8. A laminated semiconductor article comprising:
 - a. a flexible substrate;
 - b. a biaxially textured buffer system on said flexible substrate;
 - c. an epitaxial Ir-based buffer layer on said buffer system; and
 - d. at least one epitaxial layer of a semiconductor over said Ir buffer layer.
9. A laminated semiconductor article in accordance with claim 8 wherein at least a portion of said substrate comprises at least one of the group consisting of stainless steel, Cu, Ni, Fe, Al, Ag, and alloys of any of the foregoing.
10. A laminated semiconductor article in accordance with claim 8 wherein at least a portion of said substrate comprises at least one of the group consisting of Ni-W, Ni-Cr, Ni-Cr-Al, Ni-W-Al, Ni-Cr-W, Ni-Cr-V, Ni-V, and Ni-Mn.
11. A laminated semiconductor article in accordance with claim 8 wherein at least a portion of said article comprises another buffer system between the Ir-based buffer layer and said semiconductor, said another buffer system comprising at least one material selected the group consisting of nitrides, perovskites, MgO, CeO₂, Y₂O₃, SrTiO₃, BaZrO₃, BaSnO₃, BaCeO₃, YSZ, (RE_{1-x}Sr_x)MnO₃, REMnO₃, RE₂O₃, REAlO₃, RE₂Zr₂O₇, RE₃NbO₇, RESMO, and REMO where RE comprises at least one rare-earth element.
12. A laminated semiconductor article in accordance with claim 8 wherein at least a portion of said flexible substrate is characterized by at least one of the group of characteristics consisting of single crystal, biaxially textured, and untextured.
13. A laminated semiconductor article in accordance with claim 8 wherein said oxide buffer system further comprises at least one material selected from the group consisting of perovskite, MgO, CeO₂, Y₂O₃, SrTiO₃, BaZrO₃, BaSnO₃, BaCeO₃, YSZ, (RE_{1-x}Sr_x)MnO₃, REMnO₃, RE₂O₃, REAlO₃, RE₂Zr₂O₇, RE₃NbO₇, RESMO, and REMO where RE comprises at least one rare-earth element.

14. A laminated semiconductor article in accordance with claim 8 wherein said Ir buffer layer further comprises the alloy $\text{Ir}_{1-x}\text{M}_x$ wherein M comprises at least one element selected from the group consisting of Ta, Ti, Cu, Pt, Pd, Ru, Rh, W, Os, Au, and Ag.
15. A laminated semiconductor article in accordance with claim 8 wherein said semiconductor comprises diamond.
16. A laminated semiconductor article comprising:
 - a. a flexible Ir-based substrate; and
 - b. at least one epitaxial layer of a semiconductor on said flexible Ir substrate.
17. A laminated semiconductor article in accordance with claim 16 wherein said flexible Ir substrate further comprises the alloy $\text{Ir}_{1-x}\text{M}_x$ wherein M comprises at least one element selected from the group consisting of Ta, Ti, Cu, Pt, Pd, Ru, Rh, Os, Au, and Ag.
18. A laminated semiconductor article in accordance with claim 16 wherein said semiconductor comprises diamond.
19. A laminated semiconductor article in accordance with claim 16 wherein said article further includes at least one buffer layer between the Ir-based layer and said semiconductor, said buffer layer comprising at least one material selected from the group consisting of nitrides, perovskites, MgO, CeO_2 , Y_2O_3 , SrTiO_3 , BaZrO_3 , BaSnO_3 , BaCeO_3 , YSZ, $(\text{RE}_{1-x}\text{Sr}_x)\text{MnO}_3$, REMnO_3 , RE_2O_3 , REAlO_3 , $\text{RE}_2\text{Zr}_2\text{O}_7$, RE_3NbO_7 , RESMO, and REMO where RE comprises at least one rare-earth element,.